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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/017,536

10/29/2001

Rajan Kumar

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8086

7590

08/24/2005

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EXAMINER

LAM, ANN Y

ART UNIT

PAPER NUMBER

1641

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/017,536

Applicant(s)

KUMAR, RAJAN

Examiner

Ann Y. Lam

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,4,9,10,13,17,18 and 21-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,3,4,9,10,13,17,18 and 21-24 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 9, 10, 13, 17, 18 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi et al., 6,730,212, in view of Wohlstadter et al., 6,090,545.

Yamagishi et al. discloses the invention substantially as claimed. With respect to claim 1, Yamagishi et al. discloses a device comprising:

at least two substrates (2a and 2b, see fig. 1(b) containing fenestrations (G, see fig. 1(b)) larger than 1 micrometer (see col. 5, lines 30-32);

immobilized molecules of at least one first chemical species created on at least one surface of at least one of the substrates, wherein molecules of each immobilized chemical species are located in distinct and known regions of the surface of the substrate; and

the substrates are stacked together wherein the different substrates are not in contact with each other; and

wherein the device is capable of receiving a solution containing at least one second chemical species that comes in contact with at least one of the first chemical species.

As to claim 3, at least one of the substrates contains more than 1, but less than 100 fenestrations (col. 5, lines 35-36, disclosing 50 line pairs of digits 2a and 2b). The openings between adjacent digits on the same electrode are considered the fenestrations in claim 3.

As to claim 9, the array elements are composed of proteins (col. 6, line 7).

As to claim 10, at least one of the substrates is less than 0.5 mm thick in the part that bears the array of molecules (col. 5, lines 27-29).

As to claim 17, the substrate is less than 100 micron thick in the part that bears the array of molecules (col. 5, lines 27-29).

As to claim 18, at least one of the substrate is glass (col. 4, line 65 – col. 5, line 1). (At least one of the substrates in the Yamagishi et al. device is considered by the Office to include not only the electrode, but also the glass substrate.)

As to claim 21, the device is considered by the Office to be capable of separation into individual substrates after contacting at least two chemical species. The Office notes that Applicant does not claim how the substrates may be separated.

As to claim 22, at least one of the first chemical species on each of two or more substrates is viewable using a confocal microscope. The Office notes that claim 22 only recites intended use and that the Yamagishi et al. device is capable of performing the intended use.

As to claim 23, at least one of the first chemical species present on one of the substrates is present on every other substrate (col. 6, lines 8-12).

As to claim 24, the second chemical species consists of protein molecules (col. 6, line 7.)

However, Yamagishi et al. does not disclose that the immobilized molecules are in an array. Wohlstadter et al. discloses this limitation.

Wohlstadter et al. discloses interdigitated electrodes (col. 7, line 66 – col. 8, line 4, and col. 38, lines 9-12) with a patterned array of antibodies (col. 11, lines 15-18, and col. 12, lines 22-24, and col. 10, line 67). Wohlstadter teaches that the patterned array is a multi-array and multi-specific for a plurality of analytes (col. 11, lines 15-18.) The Wohlstadter interdigitated electrodes detect analyte binding (col. 10, line 65 – col. 11, line 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the immobilized molecules in the Yamagishi et al. device, which is also interdigitated electrodes detecting the presence of an analyte, because Wohlstadter teaches that such patterning allows for the convenience of detecting a plurality of different analytes.

As to claim 13, Yamagishi et al. does not disclose that at least one of the array elements present on each of the array is not present on any other array. Wohlstadter et al. however teaches that arrays of multiple species may be used (col. 11, lines 15-18). Figure 5A discloses different species on one support, and Figure 5B discloses the same species on one support. It would have been obvious to one of ordinary skill in the art to

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provide different species on different supports or digits in the Yamagishi et al. device as taught by Wohlstadter because Wohlstadter teaches that such patterning are useful and convenient for detecting a plurality of analytes.

As to claim 4, Yamagishi et al. also does not disclose that the substrate has 100 or more fenestrations. However, Yamagishi et al. does teach that “[a]bout 50 line pairs of digits 2a and 2b are preferably used, but the number of such line pairs can vary with the application and the dimensions of the sensor element required for a particular application” (col. 5, lines 35-39.) It has been held however that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. In this case, the number of digits being over 100, and thus the number of fenestration being over 100, is an optimum or workable range and its discovery would involve only routine skill in the art according to *In re Aller*.

### ***Response to Arguments***

The Office acknowledges that allowable subject matter was indicated in the previous Office action. However, upon further search and consideration, the current claims are rejected over Yamagishi et al. in view of Wohlstadter et al. as described above.

### ***Conclusion***


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann Y. Lam whose telephone number is 571-272-0822. The examiner can normally be reached on M-Sat 11-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.L. 

  
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08/19/05